

The Royal Society of Chemistry is the world's leading chemistry community. Through our high impact journals and publications we connect the world with the chemical sciences and invest the profits back into the chemistry community.

IN THIS ISSUE

ISSN 1359–7345 CODEN CHCOFS 61(57) 10397–10616 (2025)



Cover

See Kenjiro Hanaoka et al.,
pp. 10522–10525.
Image reproduced by
permission of Kenjiro
Hanaoka from
Chem. Commun.,
2025, **61**, 10522.



Inside cover

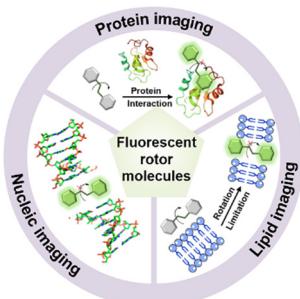
See Seth M. Cohen et al.,
pp. 10526–10529.
Image reproduced by
permission of
Dipendu Mandal from
Chem. Commun.,
2025, **61**, 10526.

HIGHLIGHTS

10408

A fluorescent molecular rotor for biomolecular imaging analysis

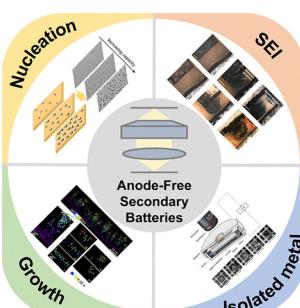
Dicheng Xie, Sheng Sun, Qianqian Zhou, Chao Wang,
Lifang Cao, Weiping Zhang* and Guowei Li*



10418

Spatial-temporally resolved optical imaging of electroplating/stripping processes in anode-free secondary batteries

Muhammad Saqib, Jiaxin Mao and Rui Hao*



GOLD
OPEN
ACCESS

RSC Applied Polymers

The application of polymers,
both natural and synthetic

Interdisciplinary and open access



rsc.li/RSCApplPolym

Fundamental questions
Elemental answers

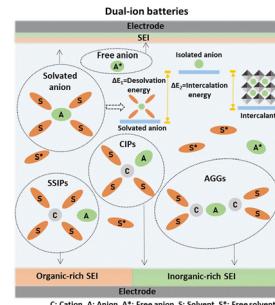
Registered charity number: 207890

HIGHLIGHTS

10432

Electrolyte solution chemistry and interface dynamics for fast-charging sustainable anion shuttle batteries

Gijung Lee, Jin Jun Heo, Jieun Kang, Jin Woo Yi and Jaegeon Ryu*

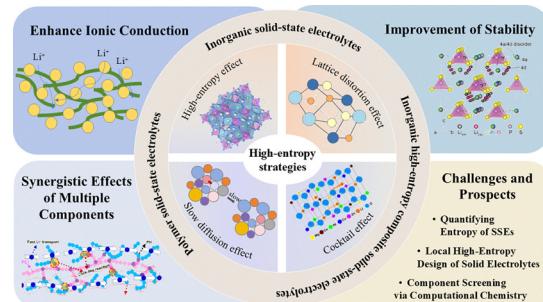


FEATURE ARTICLES

10449

High-entropy strategies for designing advanced solid-state electrolytes: a comprehensive review

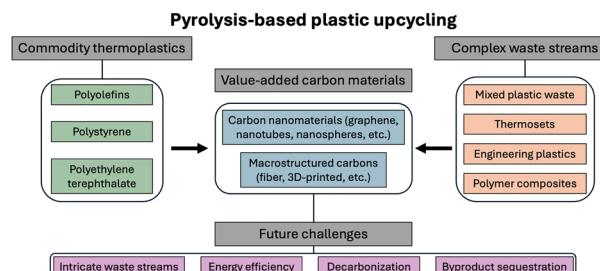
Haolin Xie, Zhihao Yang, Jiaxing Liu, Weiying Wu, Tieqi Huang and Hongtao Liu*



10470

Pyrolysis-based methods to upcycle plastic wastes to value-added carbons

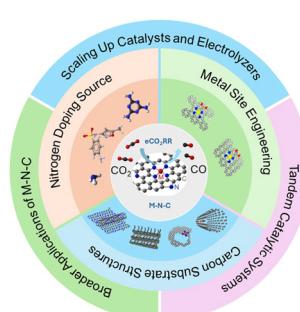
Anthony Griffin and Zhe Qiang*



10484

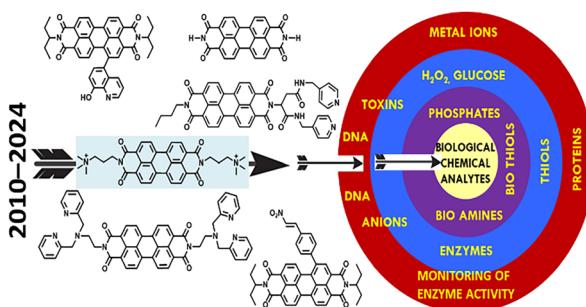
Metal–nitrogen–carbon catalysts for electrochemical CO₂ reduction: from design to industrial applications

Shengyao Wang, Ahmed Badreldin and Ying Li*



FEATURE ARTICLES

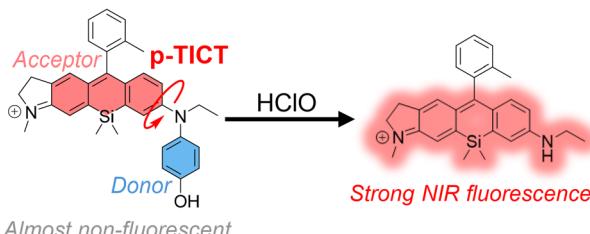
10505

**Perylene diimide-based indicator displacement assays**

Prabhpreet Singh,* Lalit Singh Mittal and Kapil Kumar

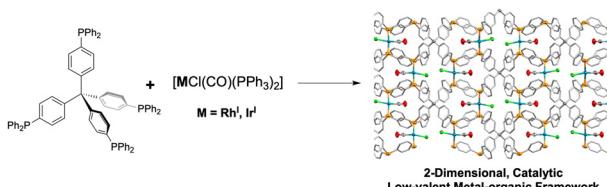
COMMUNICATIONS

10522

**Development of a near-infrared fluorescence probe for hypochlorous acid based on the phenyl-induced twisted intramolecular charge transfer (p-TICT) mechanism**

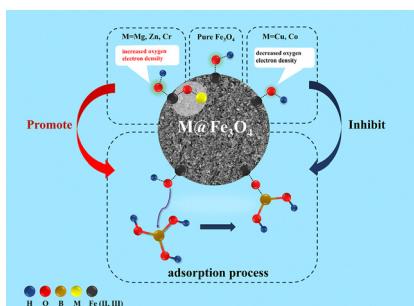
Hisashi Ohno, Shun Sumitani, Ariunbold Chuluun-Erdene, Takahiro Kuchimaru, Sota Yamada, Eita Sasaki and Kenjiro Hanaoka*

10526

**Selective hydrosilylation of olefins by a two-dimensional Rh(I) low-valent metal–organic framework**

Dipendu Mandal, Madison R. Esposito, Samuel E. Griffin, Grant P. Domecus and Seth M. Cohen*

10530

**Mechanism of metal doping in regulating the boron adsorption performance of Fe_3O_4 nanoparticles**

Yumeng Jiang, Anni Yang, Huiqun Ju, Tianyu Li, Jiafei Lyu* and Xianghai Guo*



COMMUNICATIONS

10534

Palladium-catalyzed cyanation of aryl (pseudo)halides using a redox-active N–CN reagent

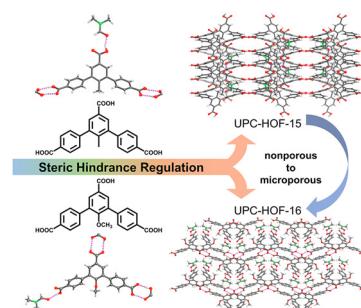
Murugan Dhanalakshmi and Pazhamalai Anbarasan*



10538

Steric hindrance regulation in hydrogen-bonded organic frameworks: from nonporous to microporous

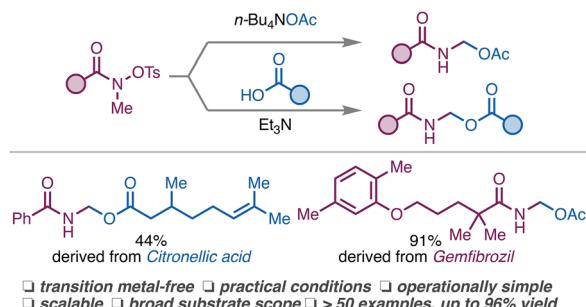
Xiaokang Wang, Hongyan Liu, Meng Sun, Fei Gao, Xueying Feng, Mingming Xu, Weidong Fan* and Daofeng Sun*



10542

Direct N-methyl C–H esterification of O-tosyl hydroxamates to enable facile synthesis of hemiaminal esters

Jian-Chen Wu, Heng Yang, Zhi-Wen Luo, Fei-Yang Cao, Yan Pan, Hua Xiao and Jian-Jun Dai*



10546

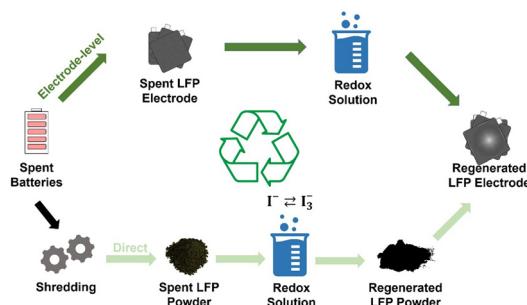
Self-sorting multi-scale materials by self-assembling multi-component nanostructured gels in nonwoven fabrics

Elizabeth Wheeldon, Michael R. Dennis, Ningtao Mao and David K. Smith*



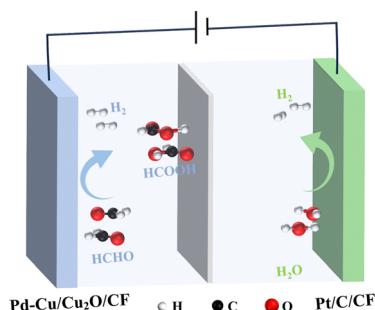
COMMUNICATIONS

10550

**Rapid room-temperature repair of spent lithium iron phosphate *via* redox mediators**

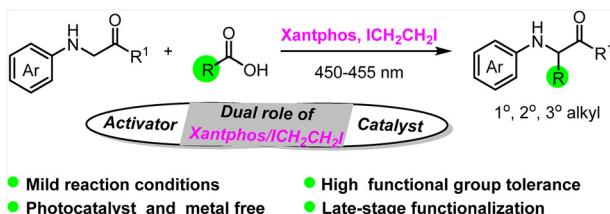
Jinsuo Zhang, Xinlong Chen, Ge Qu, Shiqi Li, Wang Wan, Yunhui Huang* and Chao Wang*

10554

**Synergistic effects of Pd and Cu for production of hydrogen and formate *via* electrocatalytic formaldehyde oxidation**

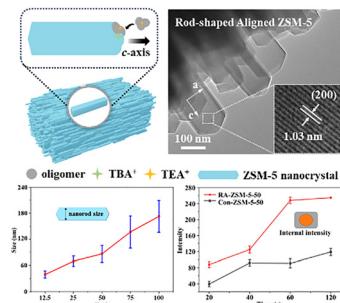
Hongjie Yu, Wenke Liu, Shaojian Jiang, Lijun Zhang, Kai Deng, Ziqiang Wang, You Xu, Hongjing Wang* and Liang Wang*

10558

**Visible-light-driven decarboxylative $C(sp^3)-H$ alkylation of glycine derivatives *via* *in situ* formation of NHPI esters**

Lan Yang, Yi-Yang Tang, Si-Yu Gao and Peng-Lin Zhang*

10562

**Hierarchical ZSM-5 with tunable structure and enhanced mass diffusion**

Xuan Wu, Bo-Jun Zeng, Si-Ming Wu,* Lu Wu, Liang Mao, Yi-Tian Wang, Feng-Juan Wu, Ge Tian,* Li-Ying Wang, Gang-Gang Chang, Christoph Janiak and Xiao-Yu Yang*

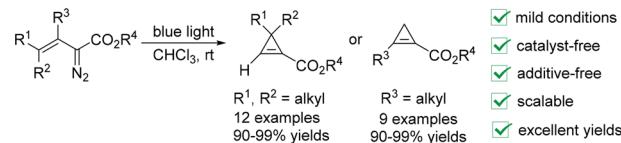


COMMUNICATIONS

10566

Synthesis and isolation of less stable cyclopropene-1-carboxylates

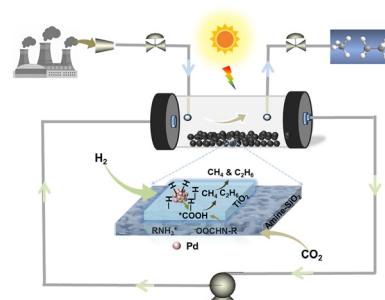
Jiahao Ling, Jiabao Tian, Xinhai Zhu* and Lei Zhou*



10570

A coupled system accelerating the photocatalytic reduction of *in situ* captured CO_2 to methane

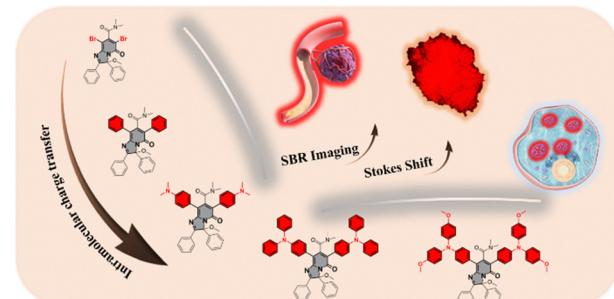
Shichao Zhang, Xueyuan Wang, Gengheng Li, Yang Liu, Di Huang,* Tengfei Yang, Junju Mu, Yingping Huang, Chaofeng Zhang* and Feng Wang*



10574

Large Stokes shift by increasing intramolecular charge transfer for high signal-to-background ratio bioimaging

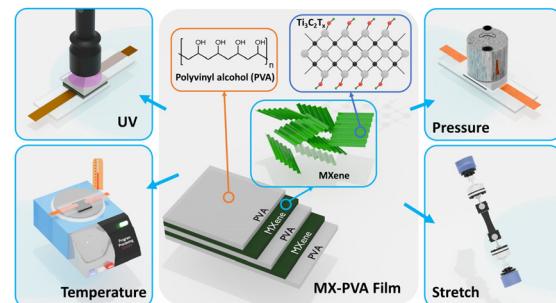
Shiyu Wu, Zhicheng Ban, Hui Tang, Ning Ma, Xiaoyun Ran, Qian Zhou, Yahui Zhang,* Zhouyu Wang* and Xiaoqi Yu



10578

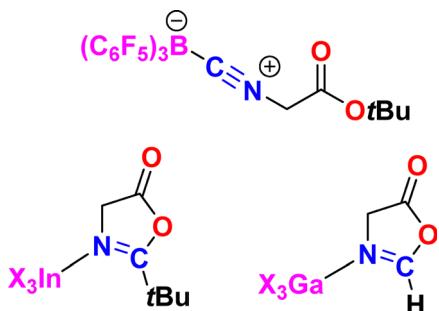
Wearable and stretchable electronics enabled by MXene–PVA films via layer-by-layer assembly with integrated UV, thermal, and mechanical sensing

Ji Lin, Chia-Wei Chang, Chun-Ting Chang, Kesavan Manibalan, Tsung-Hung Tsai, Yu-Chun Lin, Yen-Shen Hsu, Ming-Hsuan Chang and Jiun-Tai Chen*



COMMUNICATIONS

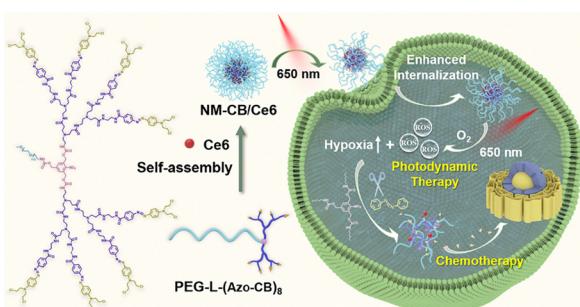
10582

**Group 13 Lewis acid-mediated formation of 5-oxazolone derivatives from *tert*-butyl isocyanoacetate**Zhou He, Shaoying Ju, Ting Chen, Xinghua Zhang,*
Douglas W. Stephan* and Yile Wu*

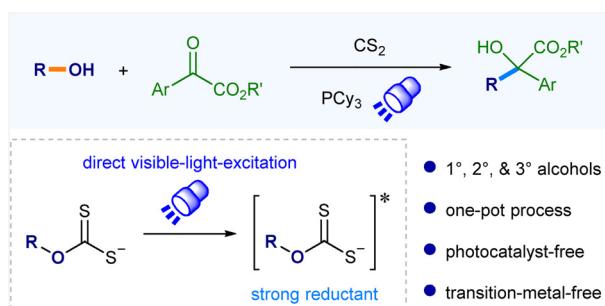
10586

**Oxidative [3+2] annulation of activated pyridines for the synthesis of indolizinyl sulfonyl fluorides: a class of important pharmacophores**Sen Zhang, Eman Fayad, Hanadi A. Katouah,
Yi-Yong Huang and Hua-Li Qin*

10590

**Self-immolative PEGylated dendritic drug conjugates for cancer therapy with enhanced cellular uptake**Zining Xia, Yixin Zhang, Xinyi Zuo, Sucan Cheng,
Yanwen Tian and Yue Ding*

10594

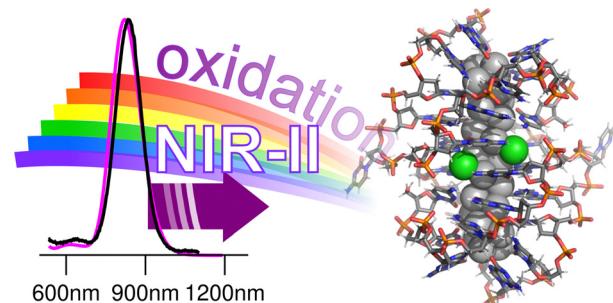
**Visible-light-driven photocatalyst-free deoxygenative homologation of alcohols to access tertiary alcohols**Xiaochuang Wang, Jun Zhang, Lu Zhao and
Xuesong Wu*

COMMUNICATIONS

10598

Tuning the electronic structure of a rod-like DNA-stabilized silver nanocluster $\text{Ag}_{28}\text{Cl}_2$ for photophysics in the NIR-II window

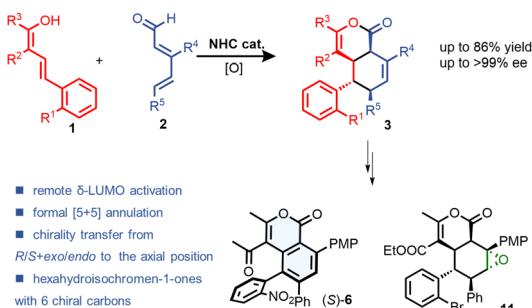
Sami Malola and Hannu Häkkinen*



10602

Carbene-organocatalyzed enantioselective [5+5] annulation of dienols and dienals towards tetrahydroisochromen-1-ones

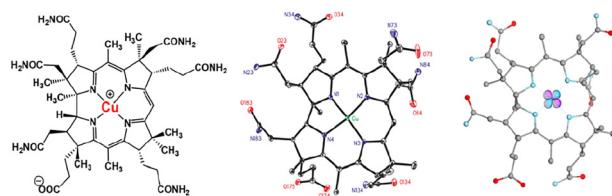
Ke Xu, Jiayi Zhao, Kejun Lin and Tingshun Zhu*



10606

Encasing the paramagnetic copper(II)-ion by the ring-contracted corrin ligand of vitamin B₁₂

Christoph Kieninger, Klaus Wurst, Daniel Leitner, Luis P. Peters, Dennis F. Dinu, Markus Wiedemair, Marc-Kevin Zaretzke, Martin Bröring, Stephan Hohloch, Klaus R. Liedl and Bernhard Kräutler*



10610

Development of electronically tuneable N-heterocyclic borates

I. J. Huerfano, Evgueni Gorobets, Wen Zhou, Warren E. Piers, Jeffrey F. Van Humbeck* and Darren J. Derkens*

